

Denny Earle 10/6/2015 #8

HOUSE NATURAL RESEOURCES COMMITTEE MICROBEAD TESTIMONY

First, let me thank the committee for the opportunity to testify this morning regarding this important legislative initiative. Your interest in removing plastic microbeads from personal care products is an important concern of the members of the Michigan Steelhead and Salmon Fishermen's Association. As Executive Director of the organization, I look forward to working with members of the Michigan Legislature who are committed to legislation that will actually achieve its intended goal—which is to phase out the sale and manufacture of all plastic microbeads from being added to personal care products.

After considerable research and deliberation, our organization concurs with the numerous scientists and wildlife conservationists who share concerns that:

- An increasing number of personal care products contain microbeads, tiny plastic particles that are meant to exfoliate the skin and are rinsed down the drain. These multicolored, very small, buoyant pieces of plastic are passed through wastewater treatment plants and discharged into waters.
- Once microbeads are in the water, they persist – they do not break down or degrade over time – and collect toxic chemical pollutants on their surface. These microbeads contaminate water and hurt the aquatic life there.
- Mistaken for food, microbeads harm the health of fish when ingested. This represents a serious threat to the wildlife habitat and the quality of fishing in our rivers and lakes.
- Sports fishing in Michigan is a major reason why ours is a destination state for outdoor recreation and tourism. It represents a significant marketplace that contributes the employment growth of our economic recovery.
- **Plain and simple: this industry counts on microbead-free waters in order to stay in business.**

In 2014, Illinois passed a law banning the sale and manufacture of microbeads, on which our organization was asked to state its position. After careful review, however, **the Michigan Steelhead and Salmon Fishermen's Association will be unable to support language here in Michigan if it remains worded identically to the Illinois law, because:**

- The Illinois language only prohibits the sale and manufacture of “non-biodegradable synthetic plastic microbeads” and our organization wants to remove ALL plastic microbeads, regardless of potential degradability. It is our opinion that no type of microbead, whether biodegradable or not, could break down quickly enough that fish wouldn't mistakenly eat them. **We recommend that the word “non-biodegradable” be stricken from Michigan's language.**
- If the word “non-biodegradable” is not stricken, **we would suggest that a standard for “biodegradability” be defined in the language in a manner that will ensure the product could degrade quickly enough to avoid ingestion by fish and wildlife.**
- The Michigan Steelhead and Salmon Fishermen's Association has been a leading advocate for the removal of microbeads for several years, and hold high hopes that this legislation could be accomplished fully and swiftly in Michigan.

Michigan has over 3,000 miles of shoreline bordering ^{36,000} ~~four of the five Great Lakes, 11,000-~~ miles of rivers and streams, we stock 22,000,000 fish and we are the second most visited state for sport fishermen (347,000 last year) in the nation. The final form of federal legislation hinges on what the State of Michigan passes so we need time to get it right.

Organizations which have joined us in support of these recommendations are: Michigan Trout Unlimited, Ducks Unlimited, the Michigan Charter Boat Association, Michigan United Conservation Clubs, the Great Lakes Fishery Commission's Committee of Advisors, West Michigan Walleye Club, the Michigan Environmental Council, the League of Conservation Voters, the Michigan Tourism Strategic Plan Resources and Environment Committee, and the Tourism Industry Coalition of Michigan.

As legislators of the "Great Lakes State," we expect our lawmakers to take the necessary actions to protect our waterways and aquatic species. I hope you will take our recommendations under consideration so that we can be sure the bill will actually accomplish what it should.

If there are further changes to the bill, I would be happy to review it for reconsideration of our position.

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Biodegradable Plastics: True or False? Good or Bad?

By Brenda Platt

Coordinator, Sustainable Plastics Project, [Institute for Local Self-Reliance](#)

In an attempt to position their products as green, several companies have recently introduced biodegradable products made from conventional plastics. Products and claims include:

The Biogreen Bottle™ reusable water bottle made from LDPE: "100% biodegradable, recyclable and reusable" "BioGreen Plastic will fully biodegrade in home compost heaps, commercial composting operations, buried in the ground, buried in landfills, tilled into the soil, having been littered etc. Most importantly, this process is by far the most widely applicable, proven technology for the biodegradation of plastics in the world."

Aquamantia's ENSO™ single-use water bottle made from PET: "Launches world's first 100% biodegradable-recyclable bottle" "ENSO™ bottles are validated through third party ASTM standard tests." "ENSO Bottles are 100% biodegradable and compostable" "Our PET bottles will biodegrade in anaerobic and aerobic/compostable environments"

Perf Go Green biodegradable plastic bags, including lawn and leaf bags: "Once Perf Go Green products are discarded (whether that be on land, underground, at sea, etc.) they will completely degrade and break down returning to nature in as little as 12-24 months – leaving absolutely NO residue or harmful toxins."

PolyGreen polyethylene plastic newspaper bags by GP Plastics Corporation: "100% oxo-biodegradable" "Because they are conventional plastics with an additive, they are compatible with the existing recycle stream."

Planet Green Bottle Corporation's Reverte™ oxo-degradable PET plastic bottle: "The PGBC oxo-biodegradable PET plastic bottle is compatible with all current recycling streams for PET plastic bottles." "Reverte™ does indeed firstly break down the PET into fragments but then these fragments are bio-digested until all that ultimately remains is CO₂ and water." "Reverte™ PET bottles will oxo-biodegrade if they find their way into the ocean since in this environment there is usually plenty of oxygen, UV light and heat which are required for the oxo-biodegradation process."

Discover's biodegradable PVC credit card: "The biodegradable Discover Card is made of biodegradable PVC, a substance that allows 99 percent of the card plastic to be safely absorbed when exposed to landfill conditions."

Too good to be true? You bet.

Most if not all these claims are unsubstantiated.

The companies selling these products are taking advantage of markets that are unaware of the difference between certifiable compostable and biodegradable products and those that are not.

Truly biodegradable plastics are plastics that can decompose into carbon dioxide, methane, water, inorganic compounds, or biomass via microbial assimilation (the enzymatic action of microorganism). To be considered biodegradable, this decomposition has to be measured by standardized tests, and take place within a specified time period, which vary according to the "disposal" method chosen. The American Society of Testing and Materials (ASTM) has created definitions on what constitutes biodegradability in various disposal environments.

Plastics that meet [ASTM D6400](#), for instance, can be certified as biodegradable and compostable in commercial composting facilities. In Europe the equivalent standardized test criteria is [EN 13432](#). In the US, there is a biodegradability standard test method for soil ([ASTM D5988](#)), for marine and fresh water ([ASTM D6692](#) and [ASTM D6691](#)), one for wastewater treatment facilities ([ASTM D5271](#)), and one for anaerobic digestion ([ASTM D5511](#)). Other countries have similar standards and

certifications. Belgium is unique in offering "The OK Compost HOME" mark, which guarantees that the product can be composted in home composting systems.

Steve Mojo of the [Biodegradable Products Institute \(BPI\)](#) has repeatedly asked to see Aquamantra's claims that its PET will fully biodegrade in landfills or marine environments. "Nothing of credible science has come back."¹ On oxo-degradables, Steve acknowledges these plastics can fragment within 3 months but clarifies that fragmentation is not a sign of biodegradation and that no data shows how long these plastic fragments will persist in the soil or the marine environment. According to [Dr. Ramani Narayan](#), an international expert on biodegradability and a professor of Chemical Engineering & Materials Science at the Michigan State University, some evidence presented shows partial degradation but "the key phrase is 'complete' – if they are not completely utilized, then these degraded fragments, which may even be invisible to the naked eye, pose serious environmental consequences."²

Oxo-degradable plastics do not meet any standards in place for biodegradability and should not be considered biodegradable. In fact, the US National Advertising Division of the Council of Better Business Bureaus has recommended that GP Plastics Corporation modify or discontinue some of its advertising claims for its oxo-degradable PolyGreen bags.³ In California, a study sponsored by the [California Integrated Waste Management Board \(CIWMB\)](#) and led by Dr. Joseph Greene at California State University showed that oxo-degradable bags on the markets showed no biodegradation.⁴ Its findings and the proliferation of unsupported biodegradability claims, led the state to pass two laws effective January 2009 that restrict use of the terms "compostable," "biodegradable" "degradable," and "marine degradable" on plastic bags.⁵

Claims of recyclability are likewise unsubstantiated. The largest recycler of plastic bags in the country, [TREX](#) plastic lumber company, issued a [statement](#) last September that reads in part: "Unless and until the long term durability testing concludes that the oxo-biodegradable polyethylene plastic (OBPE) will not have an adverse effect on our product, Trex cannot support the introduction of OBPE materials into traditional recyclable polyethylene streams." Indeed even [Planet Green's](#) web site admits "our work with PET recycling has only been conducted within our laboratory facility."

Even more to the point, perhaps, is that being designed to biodegrade in a landfill does not make a product environmentally sound. In fact, the opposite is true. Landfills are a top source of methane, a greenhouse gas 72 times more potent than CO₂ in the short term. Methane results when materials biodegrade under anaerobic conditions in a landfill. To mitigate climate change, we need to STOP biodegradable materials from entering landfills, not encourage more landfill disposal. In fact, in greenhouse gas inventorying protocols, nonbiodegradable plastics get credit for sequestering carbon in landfills. To be considered green or sustainable, products should be designed to be reused, recycled, or composted (among other criteria).⁶

While many bioplastics are certifiable as compostable in commercial compost facilities, not all can be home composted and not all are biodegradable in the marine environment. Furthermore, a number of petrochemical-based polymers are certified biodegradable and compostable. Biodegradability is directly linked to the chemical structure, not to the origin of the raw materials.

Considering use of biodegradable products? Ask for proof of biodegradable certification and biobased content.

¹ Mojo, Steve. "Re: biodegradability claims." Message to Brenda Platt. 18 March. 2009. Email. Also see, BPI's comments on the use of additives in their fact sheet, Background on Biodegradable Additives.

² For a detailed technical review and rebuttal of biodegradability claims, see Dr. Ramani Narayan's, "Biodegradability..." *Bioplastics Magazine* [01/09, Vol. 4], pp. 28-31.

³ For the NAD case study on GP Plastics Corp., see The Advertiser Magazine's article.

⁴ See "Performance Evaluation of Environmentally Degradable Plastic Packaging and Disposable Service Ware," CIWMB Publication Number: 432-08-001, June 2007. Available online at:

⁵ For information on these laws, AB 7071 (Plastic Labeling Enforcement) and AB1972 (Truthful Environmental Advertising for Plastics), go to: <http://www.cawrecycles.org/node/...> and <http://www.cawrecycles.org/issues/...>

⁶ Brenda Platt et al, *Stop Trashing the Climate* (Washington, DC: Institute for Local Self-Reliance, June 2008).

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The latest threat to our rivers, streams, and Great Lakes isn't the big head or silver carp. It isn't the zebra or quagga mussel, though the latter continues an unchecked onslaught of the Great Lakes bottomland and threatens to alter the entire Great Lakes ecosystem. Instead of an invasive species, it's a seemingly innocuous minuscule ball of plastic called microplastic, or more specifically, the plastic microbead.

Over the years, microbeads have replaced traditional, biodegradable alternatives such as ground apricot shells, almonds, salt crystals, or oat meal as ingredients in a number of personal care products. Today's facial scrubs use microbeads to exfoliate dry skin, toothpastes contain microbeads to add texture, and makeup contains microbeads to add color, heretofore provided by other natural products. They are listed on ingredient labels under the material names of polyethylene, polypropylene terephthalate, or polymethyl methacrylate.

The problem arises when we rinse them down the drain. They are too small (1mm in diameter) to be captured in most wastewater treatment plants. Instead, they are released into rivers and make their way into the Great Lakes.

Researchers at the State University of New York estimate that an average of 17,000 of the plastic particles is found per square kilometer in Lake Michigan. The numbers are lower in Lakes Superior and Huron, but higher in Erie and Ontario where the researchers estimate the plastic concentrations as high as 1.1 million per square kilometer.

The non-profit organization 5 Gyres found a large number of microplastics in the Great Lakes and estimates that one single care

product (Neutrogena's Deep Clean) contains 360,000 microbeads. Due to their chemical makeup, microplastics attract other persistent organic pollutants such as PCBs and pesticides from the marine environment, becoming as much as one million times more toxic than the water around them.

Not only do they enter the waterways, they can also enter the food chain. The beads, which can resemble fish eggs, are mistaken for food and ingested by fish and other marine animals. That means they can make it all the way to your table. So much for the circle of life.

If microbeads pose such a problem for the environment, why do companies put them in their products to begin with? According to Stiv Wilson, campaign director for the The Story of Stuff Project and leader of the national effort to ban microbeads, "Well for one, plastic is cheaper than the natural exfoliants they used to use and it's an excuse to sell more stuff. Those natural exfoliants were so good, you could only use them once a week. Plastic microbeads are smooth enough to use every day which means you run out quicker and have to buy more of that product." Bottom line is that it is more profitable to use plastic microbeads than the traditional, biodegradable alternatives.

Even though some companies have voluntarily agreed to remove plastic microbeads from their products (Johnson & Johnson, Procter & Gamble, and Unilever), states have begun to consider banning microbeads. Illinois was the first state to ban microbeads last year, but did not go far enough, leaving loopholes for so-called

biodegradable plastics like polylactic acid (PLA). Unfortunately, PLA only biodegrades at extremely high heat, not in the cool temperatures of lake water.

Similar bans were put into effect in other states in 2014 after researchers found alarmingly high concentrations of microbeads in the Great Lakes. The state of Maryland, with the agreement of the Personal Care Products Council, has just passed a ban that effectively closes the PLA loophole. The law requires the Maryland Department of the Environment to establish regulations so that alternative exfoliants meet international standards to biodegrade in wastewater treatment plants and the marine environment. The MDE will review the regulations periodically to ensure the strongest, most relevant standards are in effect.

In Michigan, a coalition of sportsmen groups, including Trout Unlimited, Michigan Steelhead and Salmon Fishermen's Association, Michigan United Conservation Clubs, and Michigan Charter Boat Association, along with tourism organizations, including the Tourism Industry Coalition of Michigan and Michigan's Tourism Strategic Plan Committee on Resources and Environment, have requested state legislators to adopt language similar to the Maryland ban to accomplish the same result. The majority party leadership has been receptive to language that would include a provision clearly stating that the Department of Environmental Quality would administer and enforce this new law and a provision that the department will develop a standard for biodegradability that is consistent with current law. Section 324.3109 of the Natural Resources and Environmental Protection Act prohibits any discharge that is injurious to water quality and fisheries.

To date the Michigan Chemical Council, which represents the personal care products industry in Michigan, opposes the proposed language. No bill is better than a bad bill, but when you live in a state with over three thousand miles of shoreline on four of the Great Lakes, 2,000,000 anglers, 38,000 sport fishing related jobs, \$4 billion of economic impact and 22,000,000 fish stocked annually, elected representatives need to step up and protect the Great Lakes and connecting waterways.

The best approach is a national ban. U.S.

Representatives Fred Upton, R-St. Joseph, and Frank Pallone, D-N.J., have proposed legislation, the Microbeads-Free Waters Act of 2015, that by 2018 would prohibit the sale or distribution of personal hygiene products containing microbeads. The likelihood of a national ban is problematic, however. The issue is less of a concern in states that do not border large bodies of water like the Great Lakes, Chesapeake Bay, or San Francisco Bay. The majority party in Congress has not shown interest in passing legislation that negatively impacts corporate profits or is perceived as adding another layer of environmental regulation.

That means we have to fight this battle at the state level and Michigan has been and always will be the vanguard of protecting the environment and its natural resources. The Pure Michigan tourism campaign has resonated so prominently in the public's consciousness that it has evolved into the Pure Michigan brand. Michigan has the strictest ballast water discharge law of any state that borders the St. Lawrence Seaway.

"The Maryland bill is a big win for Maryland, but it is also a major step toward a nationwide shift in how these products are designed," said Stiv Wilson. "We are creating structural and transformative change on how we use plastic particles in commerce."

A consensus is developing among business, government, sportsmen, and environmentalists on the danger of microbeads and we need to take advantage of this collective like-mindedness. Washing our faces shouldn't result in trashing our lakes and streams.

